



Student Technology Assessment

No Child Left Behind Act, Part D - Enhancing Education through Technology

Section 2402 b. (1) To improve student academic achievement through the use of technology.”

Section 2402 b. (2) (A) “To assist every student cross the digital divide by ensuring that every student is technologically literate by time the student finishes 8th grade regardless of race, ethnicity, gender, family income, geographic location, or disability.”

I @ Introduction

Overview of project

Given the variety of assessment tools and strategies available plus the individual nature of both schools and students, it is difficult to suggest a “one size fits all” measurement of student technology literacy skills. The Alliance of Regional Educational Service Centers undertook to review a number of assessment instruments and models in order to offer districts a choice to consider adopting or modifying. A team of RESC staff, administrators, and teachers reviewed existing instruments, models, and/or products from those that were known by the team to be available in the time period from January to May 2005.

A matrix of the components to be considered when selecting an assessment instrument was developed. In some instances, a school-designed model was pilot tested or a study group explored examples from other states or neighboring district. Several tools used previously for teacher technology assessment were reviewed to determine if they could be modified for students.

“Every student must develop strong technological skills and continually use them in order to function adequately in our 21st century world.”

***Connecticut State Board of Education
Position Paper 2005***

The results are not intended to be a complete nor comprehensive list. The assessment tools and practices included in this document were selected to provide a school or district with information on which to base a decision as well as to provide examples. Schools are encouraged to examine a variety of models in order to satisfy their needs and standards. We offer the following as a way of spurring discussion about technology literacy and how it can best be “assessed” in your school.

II @ Sample Assessments - Skills Beyond the Facts

Name	Web link	Organization	Description	Advantages	Disadvantage	Fee
NETS*S	http://www.iste.org	ISTE & Microsoft	<ul style="list-style-type: none"> • Online measurement of progress using 12 individual modules • Aligned with ISTE standards 	<ul style="list-style-type: none"> • Comprehensive • Modular • Uses authentic tools 	<ul style="list-style-type: none"> • System requirements (PC only) • Somewhat cumbersome to create mass student logons • Not 	free
CATI Computer Assessment & Tutorial Online	http://www.cat1.org	Tech Fluency Institute	<ul style="list-style-type: none"> • Evaluates basic computer skills 	<ul style="list-style-type: none"> • Online performance based – not self • Aligned with ISTE for students & teachers 	<ul style="list-style-type: none"> • Slow loading of graphics for questions • Navigational buttons unclear 	\$15. Per user
EnGauge online assessment	http://ncrel.org/engauge/assess/assess.htm	NCREL	<ul style="list-style-type: none"> • 9 online surveys with profiles generated 	<ul style="list-style-type: none"> • Addresses multiple audiences including students 	<ul style="list-style-type: none"> • Not competency based • Attitudinal 	Free
Mansfield Student Technology Assessments for Grade 8 and Grade 4	NA	Mansfield Public Schools	<ul style="list-style-type: none"> • 8th grade contains 2 components: multiple choice questions and performance tasks. • 4th grade assessment adds keyboarding. 	<ul style="list-style-type: none"> • Easy to administer. 4th graders can complete keyboarding & multiple choice in 30 minutes. Performance task takes longer 	<ul style="list-style-type: none"> • Need access to computer lab if want to administer to all students at once. • Fee for survey tool and course builder software if need to be purchased. 	Free
iSafe Library Card	http://www.isafe.org	iSafe America	<ul style="list-style-type: none"> • Self-guided tutorial & assessment • Students passing receive library safe card. • Promotes Internet safety 	<ul style="list-style-type: none"> • Simple to administer • Self-paced • Aligned with CT Student competencies 	<ul style="list-style-type: none"> • Limited scope • Only 10 multiple choice questions • Scheduling lab 	free
Tech YES	http://www.genyes.com/programs/techyes	Gen Y	<ul style="list-style-type: none"> • Technology proficiency & certification program for students grades 6-9 	<ul style="list-style-type: none"> • Project-based • Addresses ISTE standards • Performance assessment • Demonstrate skills to peers 	<ul style="list-style-type: none"> • Commitment from school needed 	\$495. Starter kit for 30 students.
Region 12 Computer Competency Assessment	NA	Region 12 (Bridgewater, Roxbury, Washington)	<ul style="list-style-type: none"> • Portfolio assessment plan • Demonstrates 8 computer tools 	<ul style="list-style-type: none"> • long term assessment • authentic examples of student work • digital portfolios 	<ul style="list-style-type: none"> • Infrastructure needs - requires solid network and servers. 	free
Survey tools	Zommerang.com ProfilerPro Survey Monkey Dashboard Vived Perseus FinalSite Survey Module	See resources for Web sites	Survey makers, some with pre-made surveys submitted by districts or the developer.	<ul style="list-style-type: none"> • Quick and easy online surveys 	<ul style="list-style-type: none"> • Requires analysis 	Various

III. @ Knowledge-Based Assessments Examples

KNOWLEDGE BASED ASSESSMENT	PERFORMANCE BASED ASSESSMENT	PORTFOLIO BASED ASSESSMENT	PROJECT BASED ASSESSMENT
Use as a base, PLUS	Evidence of Integration	A continuous process over time	A culminating activity
<ul style="list-style-type: none"> Standardize Test Item analysis Rubric for content 	<ul style="list-style-type: none"> Observation Product summary Checklist Artifact Rubric for content and process 	<ul style="list-style-type: none"> Student production logs Student reflection Collection of artifacts Rubric for portfolio elements 	<ul style="list-style-type: none"> Interviews of team members s a group or individually Analysis of project elements Rubric for relevance of project outcome

SETDA Toolkit Resources
(<http://www.setda.org/NLIt toolkit>)

NETS•S Online Technology Assessment

Developer: International Society for Technology Education (ISTE) and Microsoft Corporation

URL: <http://www.iste.org/resources/asmt/msiste>

Contact: ISTE <http://www.iste.org/>
1.800.336.5191
<http://partnersinlearning.msmeasureup.com/>

Purpose: To provide students and teachers with easily accessible online assessments. It was developed to help measure student skills in using software applications and progress towards meeting the National Educational Technology Standards for Students (NETS•S). It is not intended to certify full achievement of standards.

Description: The online assessments are used to measure progress toward demonstration of performance standards. It was designed to provide formative assessment that is criterion-referenced rather than norm-referenced assessment. The criteria referenced is the ISTE National Educational Technology Standards for Students (NETS•S). The

information may be used to guide further learning or trends. It does not provide standardized, summative assessments for high-stakes purposes. The materials and the environment used for these assessments enable students to engage in assessment experiences that are more fully performance based and more authentic and more robust than those based solely on question/answer tests. As a result, these assessments can measure some of the more complex and challenging performance indicators in NETS•S.

Students undertake real-world tasks, in a real-world technological environment, using the same fully-functional, real-world tools they might use to complete these tasks outside of school. Tasks assess not only the technology learned but whether they can use the technology to learn.

Standards Addressed:

CT Student Technology Competencies and Performance Indicators addressed are: 1, 3, 5, 6

1. Basic Operations and Concepts: Students are proficient in the use of technology.

3. Technical Productivity Tools: Students use technology tools to enhance learning, increase productivity, and promote creativity.

5. Technology Research Tools: Students use technology tools to process data and report results.

6. Technology Problem Solving and Decision Making Tools: Students use technology resources for solving problems and making informed decisions.

Please refer to Connecticut Student Technology Standards.

Skills Addressed: Application skills are assessed in the following areas: word processing, creating a presentation, using a Web browser, using a spreadsheet, and using e-mail. Along with the names of each assessment and the application skills used, is an indicator about the ISTE NETS•S performance indicators they can help to measure.

Format and Logistics: Twelve modules in the assessment. Approximately 30 minutes to complete each depending on skill level of student

Reporting Format: Data can be viewed in the following ways:

- Viewing individual reports on screen
- Printing individual reports
- Printing aggregate group and classroom results

Cost: Free

Advantages: This assessment is very comprehensive and extensive. One benefit is that the performance tasks are modular so the student does not have to take all twelve assessments or in order. This would be a great tool to meet NCLB tech requirements. It is web-based with authentic tools and tasks.

Disadvantages: System requirements. Cannot be accessed on Macs. Requires firewall ports 80 and 3389 to be open, client ActiveX enabled. This tool requires a very high level of technical expertise. The installation of the ActiveX control is not something that the average teacher would be able to readily accomplish especially if the district's system blocks the software from downloading or loading at the time of use.

The creation of student logons is a little cumbersome. The assessment relies on teachers to create the logons individually by student through a proprietary process. Schools cannot batch upload student ids and passwords.

Comments: This would be a great tool for districts that have technology staff that understand the inner workings of Microsoft products including ActiveX and Explorer. The district technology staff also

needs an intimate understanding of their firewall and filtering services in order to be successful in the installation and use of this assessment.

Examples:

What's the Weather Module

Assesses: NETS•S 1B and 6A

Application Skill(s) Assessed:

Using a Web browser

- Navigate to a Web address
- Add a Web page to the favorites list
- Click a link to open a Web page
- Copy information from a Web page and paste it into a spreadsheet
- Using a Spreadsheet
- Change the fill in a header row
- Change the font style of text
- Enter data
- Sort data in descending order
- Highlight cells using fill color
- Answer questions using data in a spreadsheet

The Planets

Assesses: NETS•S 1B and 3A

Application Skill(s) Assessed

Using Word processing

- Insert a page break.
- Center text horizontally on a page.
- Center text vertically on a page.
- Indent the first line of a paragraph.
- Add and center page numbers on all pages except the title page.
- Use Print Preview.
- Remove blank pages
- Use Page Setup to change margins.
- Convert a table to text.
- Change bold text to plain text.
- Indent a list.
- Change plain text to bold text.
- Use the spelling tool to find spelling errors.
- Use the grammar tool to find grammar errors.
- Explain why you made spelling and grammar changes.
- Select font size, style and color appropriate to a topic.

EnGauge Online Assessment

Developer: North Central Regional Educational Lab (NCREL)

URL:
<http://www.ncrel.org/engauge/assess/assess.htm>

Contact: North Central Regional Educational Laboratory (NCREL)

Purpose: Designed to provide a system-wide view of a school or district's use of technology for teaching and learning. Tools are to help a system look at a comprehensive view of six critical factors in the educational system that influence effectiveness of learning technology.

Description: The online assessment is comprised of surveys for nine different school stakeholders. Once a project has been set up and participants complete survey, several types of reports or profiles are generated. Data submitted is anonymous and confidential.

Standards Addressed: All Strands of CT Student Technology Competencies are addressed

- 1. Basic Operations and Concepts:** Students are proficient in the use of technology.
- 2. Social, Ethical and Human Issues:** Students develop positive attitudes toward technology
- 3. Technical Productivity Tools:** Students use technology tools to enhance learning, increase productivity, and promote creativity.
- 4. Technology Communication Tools:** Students use technology to locate, evaluate, and collect information from a variety of sources.
- 5. Technology Research Tools:** Students use technology tools to process data and report results.
- 6. Technology Problem Solving and Decision Making Tools:** Students use technology resources r solving problems and making informed decisions.

Please refer to Connecticut Student Technology Standards.

Skills Addressed: Not specifically

Format and Logistics: Each participant registers with login and password. Reports are aggregated.

Reporting Format: The report presents the questions students answered and percentage chosen for each specific answer. It is a self-assessment and attitudinal in nature

Cost: Free

Advantages: Looks directly at application of technology skills to learning.

Disadvantages:

- Not competency based
- Not easy to compare with other tools as questions are unique. May be too subjective.

Comments: Group case studies on the Web site assists with understanding how use of the tool will help transform learning and professional development.

Example:

Sample of student questions below:

How often do you create your own Web pages as part of your class work?

- ☐ Never
- ☐ Hardly ever
- ☐ Sometimes
- ☐ Lots of Times
- ☐ Not Sure

How often do you make pictures or graphs on the computer to explain your ideas better?

- ☐ Never
- ☐ Hardly ever
- ☐ Sometimes
- ☐ Lots of Times
- ☐ Not Sure

How often do you search the Internet to find information for assignments?

- ☐ Never
- ☐ Hardly ever
- ☐ Sometimes
- ☐ Lots of Times
- ☐ Not Sure

How often do you uses technology to become better at reading?

- ☐ Never
- ☐ Hardly ever
- ☐ Sometimes
- ☐ Lots of Times
- ☐ Not Sure

CAT1: Computer Assisted Tutorial Online

URL: <http://www.cat1.org>

Contact:

George Yaghmour, TFI National Sales Manager

Ph: 866-277-5061

Email: gyaghmour@techfluency.org

Developer: Technological Fluency Institute;
<http://www.techfluency.org>

Purpose: To provide students and teachers with an online assessment and instruction program. A key benefit of this tool is that assessment is only one part of the system.

Online tutorials guide users through learning modules to introduce or reinforce key skills so that users will be successful on the assessment portion.

Description: CAT1 is a diagnostic-prescriptive program covering the fundamental computer productivity skills necessary for success in school, business, and industry. This online computer assessment program, created by the Technological Fluency Institute, has four basic components: assessment, learning, management, and certification. Students engage in assessment experiences that are performance based and completed in a simulated computer desktop environment.

Connecticut Student Standards addressed:

- 1. Basic Operations and Concepts:** Students are proficient in the use of technology.
- 3. Technical Productivity Tools:** Students use technology tools to enhance learning, increase productivity, and promote creativity.
- 4. Technology Communication Tools:** Students use telecommunications to collaborate and interact with peers and other audiences
- 5. Technology Research Tools:** Students use technology tools to process data and report results.
- 6. Technology Problem Solving and Decision Making Tools:** Students use technology resources for solving problems and making informed decisions.

CAT1 is built around six essential standards that closely align with the ISTE standards for teachers and students. They are:

1. Operate common technology devices
2. Perform basic file management tasks

3. Apply troubleshooting strategies for solving routine hardware and software problems
4. Use software productivity tools
5. Use technology to communicate and collaborate through e-mail, Internet, and discussion groups
6. Use technology to locate and collect information from a variety of sources

Format: Users log into the assessment portal and work through a series of six assessment tasks. Each task has multiple performance measures. A brief summary of each component is listed below:

Assessment

- Self-directed assessment for six standards
- 24 objectives with performance measures
- Access to personal progress report

Learning

- Learn in units or individual activities
- 100+ tutorials with step-by-step directions
- Technical terms link to an extensive glossary

Management

- Access 20+ helpful reports and forms
- Enroll one person or an entire group
- Customize certain elements of the program

Certification

- Granted upon completion of the program
- Include list of accomplished tasks
- Issued by TFI

Reporting Level: Application skills: word processing, spreadsheets, creating a presentation, web browser, email with attachments, file management.

Cost: \$15 per user. Consortia purchasing available.

Advantages: Performance based; not self-assessment. Actually working in PC or Mac platform environment to accomplish assigned tasks. Excellent data provided to district coordinators on individuals and groups of users.

Disadvantages: User must follow directions to change display resolution, or important navigational buttons may not be visible. Some users report frustration with time required to load graphics for simulated desktop.

Comments: Uses a simulated desktop environment, so the user is actually working on the computer performing tasks assigned under each module. District coordinators can download a graphics package so that screens load more quickly. Demo license available upon request to TFI.

i-SAFE Library Card Assessment

Developer: i-Safe America

URL: <http://www.isafe.org/>

Contact: I-Safe America, Inc.
5963 La Place Ct. # 309
Carlsbad, CA. 92008
Ph. (760) 603-7911
Fax: (760) 603-8382
Email education@isafe.org

Purpose: To promote Internet safety in upper elementary, middle, and high school students by teaching students through a self-guided tutorial and assessing their technology proficiency in using the Internet safely and ethically.

Description: The i-SAFE Library Card program comes on a CD-ROM, which contains files for both the Mac and the PC. In a self-guided tutorial format, students view a Shockwave Flash presentation with images and descriptions of issues related to Internet safety. After reviewing the tutorial, students take a 10 question multiple choice assessment specifically related to safe behavior on the Internet. If they pass the assessment, they are awarded a Library Safe Card sticker to attach to their library card or student id. If the school doesn't issue library cards, students can be issued i-SAFE Library Safe Cards. This i-SAFE Library Card serves as an assurance that students understand safe and ethical behavior on the Internet.

Standards addressed: The following CT Student Technology Competencies are addressed:

2. Social, Ethical and Human Issues: Students understand the ethical, cultural and societal issues related to technology.

4. Technology Communication Tools: Students use technology to locate, evaluate, and collect information from a variety of sources.

5. Technology Research Tools: Students use technology tools to process data and report results.

Skills Addressed: The i-SAFE Library Card is specifically geared toward student knowledge about acceptable and unacceptable behavior on the Internet. It addresses content knowledge and skills in a multiple choice format.

Format and Logistics: The i-SAFE Library Card CD-ROM provides a Shockwave Flash presentation with descriptions of terms and issues related to Internet safety. It culminates with a 10 question multiple choice quiz at the end of the student tutorial. All questions are related to safe and ethical behavior on the Internet.

Time Commitment: Approximately 15-30 minutes.

NOTE: The files on the CD-ROM can be copied onto a standalone computer or a network server and run from the computer rather than the CD-ROM. Since this material was created using federal funds, the materials are considered to be in the public domain.

Report Format:

The i-SAFE Library Card assessment gives students instant feedback after each question. In fact, they cannot go on to the next question until they have checked to see whether their answer is correct. It also gives the student the opportunity to go back and review at any time during the final assessment and at the end of the assessment. Below is a screen shot of the feedback that students receive after taking the tutorial and quiz.



Cost: There is no cost for the i-SAFE Library Card assessment. However, districts must sign a Library Safe Card Program Implementation Plan, committing them to adopt the i-SAFE America Library Safe Card Program

Advantages:

- Free
- Simple to administer
- Cross platform compatible (runs on Mac or PC)
- Self-paced tutorial format allows students to work independently
- The Shockwave Flash presentation is engaging and informative.
- Students are given immediate feedback on how well they have done

- Students who do not pass the assessment are given an opportunity to review the materials and take the assessment again.
- The CD-ROM contains a PDF version of the quiz that can be printed and administered without the need for a computer.
- Aligned with the *Connecticut Prekindergarten Through Grade 12 Computer Technology Competency Standards For Students* and the International Society for Technology in Education *Technology Foundation Standards for All Students*

Disadvantages:

- Limited scope – does not address all six CT Student Technology Competencies strands
- Multiple choice format with only 10 questions may not ensure that students have mastered the content
- Scheduling problems could occur if administering the assessment using a computer lab

Comments:

According to the i-SAFE Web site, “The United States Congress has designated i-SAFE America Inc, a non-profit Internet safety foundation, to bring Internet safety education and awareness to the youth of this country. Founded in 1998, i-SAFE is a proactive prevention-oriented Internet safety awareness program.”

No training is necessary to participate in the i-SAFE Library Card program. In order to get a copy of the CD-ROM, districts need to register with the i-

SAFE Web site at <http://www.isafe.org>. Once the registration process is complete, districts need to submit an online Implementation Plan

i-SAFE also offers a Training-of-Trainers. Through the i-SAFE Training of Trainers, teachers receive access to curriculum materials that are appropriate for grades K-12. The i-SAFE curriculum includes lessons on such topics as: Cyber Citizenship, Personal Safety, Cyber Security, Intellectual Property, Cyber Bullying and Predator Identification.

If teachers present the curriculum, students are asked to take pre and post online assessments to determine how effective the curriculum was in teaching the concepts.

Below are two sample questions from the i-SAFE Library Card assessment:

Sample Question 1. When selecting a screen name, what should you keep in mind?

- A. Make sure others know it's you – Use your name, personal info, whatever!
- B. Keep it anonymous – Pick items that won't identify you offline.
- C. Give just a hint of who you are.

Sample Question 2. Expressions of bigotry, hatred or abuse to any person or group are known as what kind of unacceptable behavior online?

- A. Spam
- B. Lurking
- C. Harassment

IV @ Project-Based Assessments Example

KNOWLEDGE BASED ASSESSMENT	PERFORMANCE BASED ASSESSMENT	PORTFOLIO BASED ASSESSMENT	PROJECT BASED ASSESSMENT
Use as a base, PLUS	Evidence of Integration	A continuous process over time	A culminating activity
<ul style="list-style-type: none"> Standardize Test Item analysis Rubric for content 	<ul style="list-style-type: none"> Observation Product summary Checklist Artifact Rubric for content and process 	<ul style="list-style-type: none"> Student production logs Student reflection Collection of artifacts Rubric for portfolio elements 	<ul style="list-style-type: none"> Interviews of team members s a group or individually Analysis of project elements Rubric for relevance of project outcome

TechYES – Student Technology Literacy Certification

Developer: Generation YES Corporation

URL: <http://www.genyes.com/programs/techyes>

Contact: <http://www.genyes.com> (888) 941-4369
or Tech4Learning, Inc. 775 Lotus Ave, Oradell, NJ 07649 (800) 661-5216

Purpose: TechYES is a technology proficiency and certification program for students in grades 6-9. The student projects address the six technology foundations (NETS•S) developed by ISTE. Students are encouraged to complete technology projects that are fun and personally involving. These projects are the basis for the TechYES evaluation and certification.

Description: This is a multi-faceted structured program, not a single assessment tool. It builds on continual learning and continual adjustments based on feedback. It can be used during or after school or

out of school. It is rigorous in the types of technology used and students learn from their peers. In order to receive a TechYES certification, students must demonstrate an understanding of requirements related to Internet safety, ethics, and evaluating Internet resources plus complete two projects using technology in creative ways. Projects are judged by three people: the student, a peer mentor, and the advisor. The program includes all necessary resources: individual student guidebooks, customized teacher/advisor materials, handouts and resources, access to a fully interactive support website, and certificates of completion. Students take on the major responsibility of becoming technologically literate by creating projects that meet state and local technology proficiency requirements.

Standards Addressed: All Strands of CT Student Technology Competencies are addressed 1,2,3,4,5,6

1. Basic Operations and Concepts: Students are proficient in the use of technology.

2. Social, Ethical and Human Issues: Students develop positive attitudes toward technology.

Students understand the ethical, cultural and societal issues related to technology.

3. Technical Productivity Tools: Students use technology tools to enhance learning, increase productivity, and promote creativity.

Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing creative works.

4. Technology Communication Tools: Students use technology to locate, evaluate, and collect information from a variety of sources.

5. Technology Research Tools: Students use technology tools to process data and report results.

6. Technology Problem-solving and Decision-making tools: Students use technology resources for solving problems and making informed decisions.

Please refer to Connecticut Student Technology Standards.

Skills Addressed: Project-based learning that demonstrates broad range of abilities including Internet safety, ethics, and evaluating Internet resources.

Format and Logistic: Activities may be incorporated into existing technology classes in middle school or as an extra-credit activity. In many schools, the class will be a semester, quarter or trimester class in a daily or block schedule. If there is not adequate time, projects could be assigned as homework or through an after school club. TechYES has a flexible format with multiple options, therefore, it may be conducted as a club or incorporated into a curriculum such as math. Projects need to be complex and open-ended to engage students.

Reporting Format: In order to receive certification, students must successfully complete two projects that have been reviewed and accepted by a Peer, Mentor, and Advisor. There is no report but rather an evaluation process as each student submits a project. Performance assessment means students are active participants in the process and demonstrate skills in that context.

Cost: \$495 for starter kit for 30 students. Starter kit includes all resources for a single site: teacher materials, student guidebook, CD, and access to Web Portal. Materials for teachers include videos, reproducible forms, and suggestions for the process.

Advantages:

- Comprehensive program supported by materials and online resources, peer involvement, and uses performance-based assessment.
- Student projects are correlated to the ISTE NETS•S standards and demonstrate effective use of technology as it relates to four criteria: gather, organize, construct, and share.
- TechYES is a research based model and developed by Generation YES.

Disadvantages:

- Cost may be a factor
- Requires a substantial investment in time and organization plus support from school.

Example: WebPortal



IV @ Performance-Based Assessments Examples

KNOWLEDGE BASED ASSESSMENT	PERFORMANCE BASED ASSESSMENT	PORTFOLIO BASED ASSESSMENT	PROJECT BASED ASSESSMENT
Use as a base, PLUS	Evidence of Integration	A continuous process over time	A culminating activity
<ul style="list-style-type: none"> Standardize Test Item analysis Rubric for content 	<ul style="list-style-type: none"> Observation Product summary Checklist Artifact Rubric for content and process 	<ul style="list-style-type: none"> Student production logs Student reflection Collection of artifacts Rubric for portfolio elements 	<ul style="list-style-type: none"> Interviews of team members s a group or individually Analysis of project elements Rubric for relevance of project outcome

Mansfield Student Technology Assessment for Grade 8

Developers: Jaime Russell, Mansfield Middle School Technology Coordinator and Jane Cook, EASTCONN Educational Technology Specialist

URL: Not applicable

Contact: Jaime Russell, Mansfield Middle School Technology Coordinator
205 Spring Hill Rd
4 South Eagleville Road
Storrs, CT 06268
(860) 429-9341
russelljl@mansfieldct.org

Purpose: To assess the technology proficiency of Mansfield 8th graders. This is an exit assessment to determine how prepared students are for success with technology when they arrive at the high school.

Description: The Mansfield District Technology Plan includes Mansfield Middle School's technology standards, which were adopted from the Connecticut State Department of Education's *Connecticut Computer Technology Standards for Students in Grades 5-8*. These standards are also aligned with the International Society for Technology in Education (ISTE) *Technology Foundation Standards for All Students*. These

standards identify the specific technology goals and objectives that need to be introduced, developed and mastered in grades 5-8.

The Mansfield Student Technology Assessment for Grade 8 was developed to assess the level of student technology competency when students exit Grade 8. The assessment aligns directly with the *Connecticut Computer Technology Standards in Grades 5-8*. This assessment is designed in six parts to answer the question: "How do we know what the students know?" Each part gives a different piece of the answer by giving students an opportunity to employ both their content knowledge and their technology skills.

Standards addressed:

- 1. Basic Operations and Concepts:** Students are proficient in the use of technology.
- 2. Social, Ethical and Human Issues:** Students develop positive attitudes toward technology
- 3. Technical Productivity Tools:** Students use technology tools to enhance learning, increase productivity, and promote creativity.
- 4. Technology Communication Tools:** Students use technology to locate, evaluate, and collect information from a variety of sources.
- 5. Technology Research Tools:** Students use technology tools to process data and report results.
- 6. Technology Problem Solving and Decision Making Tools:** Students use technology resources for solving problems and making informed decisions.

Skills Addressed: Since this is a six-part assessment, it addresses content knowledge and skills in the multiple choice and short answer sections and the application of that knowledge and skills through the other four performance assessment components.

Format and Logistics: The Mansfield Grade 8 Student Technology Assessment consists of six parts:

Section 1: Multiple Choice

Time Commitment: Approximately 15-30 minutes in the Computer Lab

Section 1 is a standard multiple choice assessment that asks students to employ their content knowledge about technology. Each question is aligned with one or more strands in the *Connecticut Computer Technology Standards*.

Section 2: Short Answer Questions

Time Commitment: Approximately 30-45 minutes in the Computer Lab

Section 2 consists of seven short answer questions asking students to explain how technology is used or misused and how they would handle certain technology problems.

Section 3: Word Processing Task

Time Commitment: Approximately 30-45 minutes in the Computer Lab

Section 3 asks students to recreate an example of a word processing document using the same formatting and content. Students are required to find and insert a specific piece of clip art. After finishing the task, students print out a “hard copy” for review by the teacher.

Section 4: Internet Task

Time Commitment: Approximately 30-45 minutes in the Computer Lab

Section 4 requires students to use an Internet Web browser to find answers to five multiple choice questions.

Section 5: Presentation Software Task

Time Commitment: Approximately 30-45 minutes in the Computer Lab

Section 5 asks students to recreate an example of two PowerPoint slides using the same formatting and content. Students are required to find and insert a specific piece of clip art. After finishing the task, students print out a “hard copy” for review by the teacher.

Section 6: Spreadsheet Task

Time Commitment: Approximately 30-45 minutes in the Computer Lab

Section 6 requires students to recreate a spreadsheet and graph using the same content and appropriate formatting. Students are required to find and insert a specific piece of clip art. After finishing the task, students print out a “hard copy” for review by the teacher.

Report Format:

Mansfield Middle School has posted all six sections online in an eSchool Builder course. Each section is a separate online “quiz”. Students complete each section and their results get scored by the eSchool Builder software. The teacher uses a [Rubric for Scoring Section 2 \(Short Answer Section\)](#) to determine how well students respond to Section 2.

Each student has an electronic entry in the online gradebook so that the teacher can monitor how many sections each student has completed. Online quiz data can be exported into Excel for detailed analysis.

Students complete a self-assessment for each of the performance sections. The performance sections are also reviewed by a teacher and compared to the student self-assessment. The teacher can then revise the student’s self-assessment score as needed.

Cost: The only cost for this assessment is the annual subscription to eSchool Builder (a course builder) <http://www.eastconn.org/eschool> and/or a survey tool so that portions of the assessment can be answered and scored online. The education cost for eSchool Builder is based on a sliding scale with a flat annual subscription fee of approximately \$500 for schools with less than 500 students to \$1500 for larger school districts) plus \$1 per user with a minimum of 100 users annually. The annual subscription allows schools to create an unlimited number of courses. Each course can accommodate up to 999 students.

Advantages:

- Posting assessment online in an eSchool Builder course with supporting resources and materials allows students to review prior to taking the assessment or go back for remedial support if they do not pass the assessment
- Online assessment requires students to demonstrate their technology proficiency by using an emerging technology
- Results are useful for informing instruction
- Results are useful in planning for future curriculum revision
- Developed locally so it is aligned with the local curriculum

- Aligned with the *Connecticut Prekindergarten Through Grade 12 Computer Technology Competency Standards For Students* and the *International Society for Technology in Education Technology Foundation Standards for All Students*
- Inexpensive
- Simple to administer
- Online sections are easy to score
- Six part assessment tests both content knowledge and the application of content knowledge
- Six part assessment requires students to demonstrate proficiency in productivity software

Disadvantages:

- For ease of administration to the whole class at once, the assessment requires access to a computer lab or wireless laptop lab that has enough computers for every student in the class – this could cause scheduling problems
- Cost of subscription to eSchool Builder may increase; however, the benefits of having online course materials to support student learning may outweigh any increased costs in the future

Comments:

Posting the *Mansfield Student Technology Assessment for Grade 8* as part of an online course is an innovative idea. Technology is being used effectively to assess the technology proficiency of students. In addition, students are acquiring and demonstrating additional technology skills by participating in an online course. Students can login 24/7 as long as they have access to the Internet to find resources and support materials that will help them pass the assessment. They can also find remedial materials that will help them retake the assessment if they do not pass.

Ultimately, Mansfield would like to design an electronic portfolio that may become a part of this assessment. It would likely take the place of some sections of the current assessment. This would allow the assessment of technology skills to be naturally embedded into content area projects. It would also mean that student work samples would be collected on an ongoing basis rather than only once at the end of 8th grade.

Examples:

Below is a sample from the *Mansfield Student Technology Assessment for Grade 8*. It includes the actual instructions and scoring rubric.

Section 6: Spreadsheet Software Task

DO NOT close this test window while completing this task (you can minimize it, but do not close it).

You will need to switch back and forth between your spreadsheet software and this test window many times to complete this task.

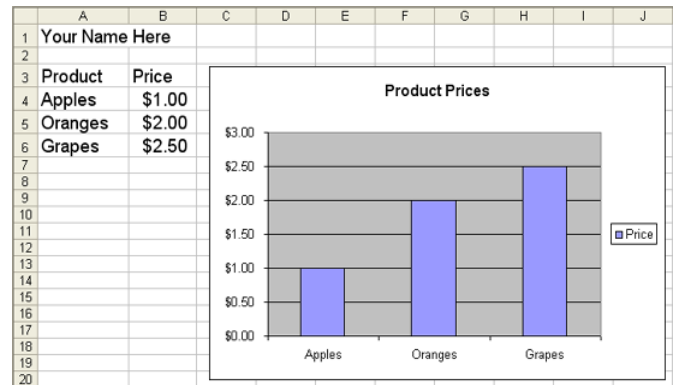
DIRECTIONS:

Use spreadsheet software to re-create the example that appears below. Type your **full name** (first name and last name) where the example says “Your Name Here”.

When you are done, **print** what you created and give it to the teacher in the room.

Click on True and then click on Submit Information at the bottom of this screen.

DO NOT click Submit Information until you are done.



Scoring Rubric of Possible Points (Spreadsheet Software Section)

A student earns points for *independently* completing a sub-task. If the assessment proctor must assist the student with a sub-task, the student receives no points.

Task	Possible Points	Points Earned by Student
Opens a blank document in spreadsheet software.	1	
Text is correctly typed (no omissions; no additions; no misspellings; no incorrect punctuation; correct formatting).	2	
Column A includes a list of the three product items	1	
Column B includes a list of the three product prices (correctly matched to the item).	1	
A bar graph is used.	1	
The bar graph is part of the spreadsheet (NOT a separate page).	1	
The bar graph includes a title.	1	
The items on the X and Y axis are legible in their size and accurately placed.	1	
The graph includes a legend box for price.	1	
The increments on the graph are appropriate.	1	
Completed task printed.	1	
TOTAL	12	

Mansfield Student Technology Assessment for Grade 4

Developers: Steve Sokoloski, Mansfield K-4 Technology Coordinator and Jane Cook, EASTCONN Educational Technology Specialist

URL: Not applicable

Contact: Steve Sokoloski, Mansfield K-4 Technology Coordinator
Mansfield Public Schools
4 South Eagleville Road
Storrs, CT 06268-2222
sokoloskias@mansfieldct.org

Purpose: To assess the technology proficiency of Mansfield 4th graders. This is an exit assessment to determine how prepared students are for success with technology when they arrive at the middle school.

Description: Mansfield Public Schools began developing Technology Goals and Objectives for their K-4 students several years ago. In August of 2002, a K-4 Technology Curriculum Team developed a scope and sequence of Mansfield Technology Competency Standards for Grades K-4. This document is aligned with the *Connecticut Prekindergarten through Grade 12 Computer Technology Competency Standards for Students* and the International Society for Technology in Education (ISTE) *Technology Foundation Standards for All Students*. It identifies what specific technology goals and objectives need to be introduced, developed, mastered, and reinforced by grade level.

The Mansfield Student Technology Assessment for Grade 4 was developed to assess the level of student technology competency when students exit Grade 4. It aligns directly with the Mansfield Technology Competency Standards for Grades K-4. This assessment is designed in three parts to answer the question: “How do we know what the students know?” Each part gives a different piece of the

answer by giving students an opportunity to employ both their content knowledge and their technology skills.

Standards addressed: All Strands of CT Student Technology Competencies are addressed

1. Basic Operations and Concepts: Students are proficient in the use of technology.

2. Social, Ethical and Human Issues: Students develop positive attitudes toward technology

3. Technical Productivity Tools: Students use technology tools to enhance learning, increase productivity, and promote creativity.

4. Technology Communication Tools: Students use telecommunications to collaborate and interact with peers and other audiences

5. Technology Research Tools: Students use technology tools to process data and report results.

6. Technology Problem Solving and Decision Making Tools: Students use technology resources for solving problems and making informed decisions.

Please refer to Connecticut Student Technology Standard

Skills Addressed: Since this is a three-part assessment, it addresses content knowledge and skills in the multiple choice portion and the application of that knowledge and skills through the keyboarding assessment and the performance assessment components.

Format and Logistics: The Mansfield Grade 4 Student Technology Assessment consists of three parts:

Part 1: Multiple Choice Items

Time Commitment: Approximately ½ hour in the Computer Lab or the Classroom

Part 1 is a standard multiple choice assessment that asks students to employ their content knowledge about technology. Each question is aligned with one or more strands in the Mansfield Technology Competency Standards. The strand number is identified in parentheses after each question.

Part 1 should take no more than ½ hour for an entire class. Part 1 can be taken in the classroom in “hard copy” or online in the Computer Lab. If it is taken in the classroom in “hard copy,” it must be scored manually by the teacher. If it is taken online in the Computer Lab, it can be scored by a computer.

Part 2: Keyboarding Assessment

Time Commitment: Approximately 15 minutes in the Computer Lab

Part 2 is a two minute timed typing test. The 100 word passage which students are required to type is based on a popular children’s book and is written at an early to mid-third grade readability level. This easier readability level was done deliberately so that students would be typing familiar words and the readability level would not interfere with their ability to perform on this part of the assessment.

Part 2 should take no more than about 15 minutes for an entire class. The most efficient way to administer Part 2 is in the Computer Lab with the whole class.

Part 3: The State of Connecticut Tech Task Performance Assessment

Time Commitment: Approximately 1 to 2 hours over the course of 2-3 weeks in the Computer Lab and the Classroom

Part 3 is a performance assessment that requires students to apply their knowledge of technology in an authentic task that is aligned with the Mansfield curriculum as well as all six strands of the Mansfield Technology Competency Standards for K-4.

IV @ Performance-Based Assessments Examples

KNOWLEDGE BASED ASSESSMENT	PERFORMANCE BASED ASSESSMENT	PORTFOLIO BASED ASSESSMENT	PROJECT BASED ASSESSMENT
Use as a base, PLUS	Evidence of Integration	A continuous process over time	A culminating activity
<ul style="list-style-type: none"> Standardize Test Item analysis Rubric for content 	<ul style="list-style-type: none"> Observation Product summary Checklist Artifact Rubric for content and process 	<ul style="list-style-type: none"> Student production logs Student reflection Collection of artifacts Rubric for portfolio elements 	<ul style="list-style-type: none"> Interviews of team members s a group or individually Analysis of project elements Rubric for relevance of project outcome

Computer Competency Assessment – Region 12

Developer: Regional School District #12
(Bridgewater, Roxbury, Washington)

URL: N/A

Contact: David Defeo, K-12 Computer Instruction Coordinator (<http://www.region-12.org>)

Purpose: Computer technologies provide tools for accomplishing a wide range of tasks within classroom assignments. It is not enough for students to learn to maneuver the menus of current software applications and operating systems. Students must understand the function of common tools and be able to use them ethically for purposes of inquiry, problem solving, and effective communication. This is consistent with the district's Technology Plan and with standards for computer use of the Connecticut State Department of Education.

Description: Portfolio Assessment Plan
The completed portfolio must demonstrate competency with each of the eight computer tools listed below. Each document should demonstrate the student's skill at using computer and computer-related technologies in sustained inquiry and problem solving.

Each item in the following technology checklist must be integrated into at least one of the portfolio submissions:

1. Digital Portfolio
2. Spreadsheet
3. Computer generated outline
4. Internet research
5. Imbedded graphics
6. New technologies
7. Image Processing
8. Databases

Students are required to complete two competencies each year.

Standards addressed: 1. **Basic Operations and Concepts:** Students are proficient in the use of technology.

3. Technical Productivity Tools: Students use technology tools to enhance learning, increase productivity, and promote creativity.

4. Technology Communication Tools: Students use telecommunications to collaborate and interact with peers and other audiences

5. Technology Research Tools: Students use technology tools to process data and report results.

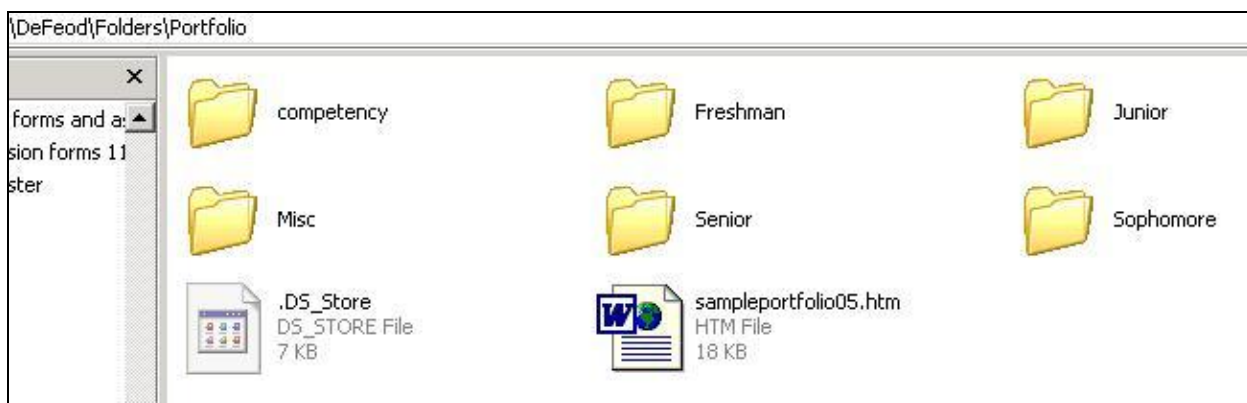
6. Technology Problem Solving and Decision Making Tools: Students use technology resources for solving problems and making informed decisions.

Skills Addressed:

1. Digital Portfolio / Word Processing
2. Spreadsheet

3. Computer generated outline
4. Internet research
5. Imbedded graphics
6. New technologies
7. Image Processing
8. Databases

Format and Logistics: The format of this assessment is a portfolio. Student work is collected in electronic portfolios on the district's network and the student work assessed against a specific rubric for the "tool". Please see appendix for the rubrics. [Click here for a sample portfolio submission form](#)



Report Format: Reporting is sent out to parents as a letter that gives the status of their child's progress in completing the competencies the district has set out as goals.

[Click here for a sample letter.](#)

Cost: None

Advantages:

Digital portfolios allow educators to assess student's skills over a long period of time. Because of this, the students have ample opportunity to learn the skills in a monitored environment. Portfolio systems not only allow educators to assess technology skills but can also be used to assess student competence on all curriculum standards.

Disadvantages:

The schools' technology infrastructure greatly impacts their ability to develop a digital portfolio system. A solid network, strong servers with ample

storage and easy access to workstation for students and teachers are required for a portfolio system to be successful. Schools with weak or old technology infrastructure will find it difficult to implement a digital portfolio system.

Comments:

Portfolio assessment using rubrics is one of the best ways to assess students' competence in the use of technology. It uses authentic examples of student work to demonstrate that the students have the skills required by the district. Portfolio assessment is meant to be a long term, comprehensive assessment strategy aimed at continuous improvement as well as point in time assessment.

If at all possible, districts should consider using portfolio assessment for technology competency as well as other curriculum assessment.

Examples:

The following rubrics have been included on this CD

1. [Word Processing Rubric](#)
2. [Spreadsheet & Graphing Rubric](#)
3. [Computer generated outline Rubric](#)
4. [Internet research Rubric](#)
5. [Imbedded graphics Rubric](#)
6. [New technologies Rubric](#)
7. [Image Processing Rubric](#)
8. [Databases Rubric](#)

VI @ Resources

“Technologies, new and emerging, can engage Connecticut students in real-life applications of academics and encourage students to be more independent and responsible for their own learning.” CAPSS white paper

Survey Makers

ProfilerPro

Developer: ProfilerPro is made possible through a grant federally funded by the Department of Education and the Office of Educational Research and Improvement (OERI).

URL: (<http://www.profilerpro.com>)

Contact: ProfilerPro is similar to its predecessor Profiler that contains 1958 surveys already created. <http://profiler.hprtec.org/servlet/reportSurveys>

Purpose: An online survey tool to help groups of individuals improve their skills around a general topic by inspiring cooperation and collaboration.

Description: Individuals can take a survey to assess skills in a general area. The results are automatically and immediately generated. It is possible to track your results over a period of time with Profiler badges and graphs and to compare your profile to the group results. With some surveys, you can find experts in your group or view a tutorial on the subject.

Report Format: Varies

Cost: The basic features of ProfilerPro are available at no cost. If you plan to incorporate ProfilerPro into the development of your organization and plan to make full use of ProfilerPro's capabilities, you can subscribe to an Extended Service account or purchase a copy of ProfilerPro to run on your own server.

Other Survey tools

FinalSite Survey Module

<http://www.finalsite.com/>

Zoomerang

<http://info.zoomerang.com/>

Surveymonkey

<http://www.surveymonkey.com>

Dashboard Vived

<http://www.vived.com>

free for K-12 schools with most features
contains sample surveys

Perseus

<http://www.perseus.com>

VII @ Appendix

“Students are not just using technology differently today, but are approaching their life and their daily activities differently because of the technology.”

Connecticut Technology Standards for Students Prekindergarten through Grade 12

1. Basic Operations and Concepts	<ul style="list-style-type: none"> • Students are able to access resources and utilize them in daily work • Students demonstrate sound understanding of nature and operation of technology systems. • Students are proficient in the use of technology.
2. Social, Ethical and Human Issues	<ul style="list-style-type: none"> • Students understand the ethical and societal issues of technology • Students practice responsible use of technology systems information, and software • Students develop positive attitudes toward technology uses that support lifelong learning.
3. Technology Productivity Tools	<ul style="list-style-type: none"> • Students use technology tools to enhance learning, increase productivity and promote creativity • Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications and producing other creative works.
4. Technology Communication Tools	<ul style="list-style-type: none"> • Students use telecommunications to collaborate, publish and interact with peers, experts, and other audiences • Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences
5. Technology Research Tools	<ul style="list-style-type: none"> • Students use technology to locate, evaluate and collect information from a variety of sources • Students use technology tools to process data and report results • Students evaluate and select new information resource and technological innovations based on the appropriateness to specific tasks
6. Technology Problem Solving and Decision-making Tools	<ul style="list-style-type: none"> • Students use technology resources for solving problems and making informed decisions • Students employ technology in the development of strategies for solving problems in the real word.

ISTE <http://cnets.iste.org/currstands/cstands-netss.html>

Publications

- CSDE Position Paper
- Instructional Technology: Vision for Connecticut Public Schools, CT Association of Public School Superintendents (CAPSS) white position paper, 1999-2000.
- Toward a New Golden Age in American Education: National Education Technology Plan, U.S. Department of Education, 2004
- CT Prekindergarten through Grade 12 Computer Technology Competency Standards for Students, CT State Board of Education, June 13, 2001.

Does your district tech plan explain how you will assess 8th grade technology literacy?